

JIEOPLAN 9002
MARCH 1, 1995



DEFENSE INFORMATION SYSTEMS AGENCY

**JOINT INTEROPERABILITY AND ENGINEERING
ORGANIZATION**



DEPARTMENT OF DEFENSE

**SYMBOLGY
INFORMATION TECHNOLOGY STANDARDS**

MANAGEMENT PLAN



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1 March 1995

FOREWORD

JIEO Plan 3200, Department of Defense (DOD) Information Technology Standards Management Plan (ITSMP), November 1993, completed a step in the implementation of the Defense Information Systems Agency's (DISA's) Information Technology Standards (ITS) Executive Agent (EA) responsibilities. The ITSMP was established as a point of departure for initiating the actions necessary to coordinate and integrate DOD's ITS activities. The structure and activities outlined in this plan are evolving as DISA, as EA, in collaboration with the Commanders in Chief (CINCs), Services, and Agencies (C/S/As), consolidates standards bodies, eliminates redundant activities, and improves the efficiency of the standards process to reduce resource requirements.

This *Symbology Information Technology Standards Management Plan (SITSMP)* applies to all DOD staff members who use symbology in support of Command, Control, Communications, Computers and Intelligence (C4I). It describes the mechanism that will provide the integration, coordination, and configuration management necessary to achieve and implement ITS in the use and display of symbology. The SITSMP is designed to capitalize upon the standards activities, special expertise, and procedures established under the Defense Standardization Program (DSP), and to provide the management structure and mechanisms necessary to coordinate and integrate this ITS effort.

This plan has been coordinated within DOD and other Federal departments and agencies on matters concerning the application of C4I symbology.

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CHAPTER 1

INTRODUCTION

1-1 PURPOSE

This plan establishes the procedures and defines the responsibilities in implementing the guidance and direction of DOD's Information Technology Standards Executive Agent, contained in JIEO Plan 3200 (reference a) as they apply to symbology. It establishes the Symbology ITS management process as the mechanism to provide the integration and coordination, the testing and validation, and the configuration management necessary to achieve, implement, and maintain information technology standards in the use and display of symbology. The goal of the process is to improve interoperability, effectiveness, and efficiency and reduce costs by applying uniform standards.

1-2 BACKGROUND

A. Within DOD, a wide variety of symbology sets have been developed that are used to portray information graphically. These symbols support many different functional areas, including the command and control of military operations, aircraft displays, weapons control systems, airspace management, mapping and charting, meteorology, and engineering design. The development of these symbol sets has been an evolutionary process derived from existing Federal, commercial, and international documentation and tailored by the C/S/As to meet their specific requirements.

B. In the absence of DOD standards, the C/S/As have published several documents that define the symbology used to support military operations that support specific C4I system requirements. The lack of a comprehensive DOD management structure has fostered the development of many diverse and conflicting symbol sets, posing a potentially serious threat to interoperability in a joint warfighting scenario. A recent assessment (reference b) shows the key role symbology plays in a joint arena that depends on C4I interoperability. The development of a comprehensive approach that systematically addresses the development of symbology is essential to standardization within DOD.

1-3 REFERENCES

References used to develop this plan are in appendix B.

1-4 SCOPE

Symbology ITS provide for the development and exploitation of symbology in support of C4I system processes, procedures, practices, operations, services, interfaces, connectivity, interoperability, information formats, interchange, processing, and transmission and transfer. This

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plan encompasses ITS used to display C4I-related symbology for national security purposes during system development, testing, fielding, enhancement, and life cycle maintenance.

1-5 APPLICABILITY

The provisions of this plan apply to all DOD components that acquire, use, and/or display symbology information, and to U.S. Government agencies outside of the DOD who have memorandums of agreement (MOAs) with the DOD, to participate in the standardization of symbology information technology standards.

1-6 AUTHORITY

The Secretary of Defense (SECDEF) is the DOD Corporate Information Management (CIM) authority. The Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)) is the delegated authority for information technology policy, guidance, and administration, according to the 16 November 1990 Office of the Secretary of Defense (OSD) Memorandum, "Implementation of Corporate Information Management Principles" (reference c). The Director, DISA, is assigned the EA responsibility for coordinating and integrating all DOD's information standards activities in the 3 September 1991 ASD(C3I) Memorandum, "Executive Agent for DOD Information Standards" (reference d).

1-7 POLICY

Management of Symbology ITS is established and exercised by DISA's Joint Interoperability and Engineering Organization (JIEO) Center for Standards (CFS) in conformance with applicable DOD management policies to achieve and maintain interoperability with the use and/or display of symbology.

1-8 RESPONSIBILITIES

Established in conformance with JIEO Plan 3200 (reference a), and chartered by the Standards Coordinating Committee (SCC) (reference e), the Symbology Standards Management Committee (SSMC) is the management forum for the Symbology ITS process. The participants' responsibilities are outlined in chapters 2 and 3.

1-9 ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviations used in this plan are listed in appendix A.

1-10 SECURITY

A. Protection of Symbology ITS Documents. Record copies of the documents supporting the management process are maintained and safeguarded according to applicable DOD

regulations and directives.

B. Classification of Symbology ITS Documents. Security classification and document dissemination procedures are performed according to the provisions of DOD Regulation 5200.1-R (reference f) and any department or agency regulations that implement these provisions.

C. Public Release of Information. The public release of Symbology ITS information is conducted according to the previously noted security classification guides. DOD Directive (DODD) 5230.9 (reference g) is the guide for the public release of other interface and management documents.

1-11 SUPPLEMENTATION

CFS activities have the authority to supplement this plan as required. Other DOD activities must obtain the authority to supplement this document from the CFS Directorate for Information Standards.

1-12 CHANGES

Address proposed changes to the following:

DISA/JIEO/CFS
ATTN: Information Standards Department
Parkridge III, Rm 3304
10701 Parkridge Boulevard
Reston, Virginia 22091-4398

CHAPTER 2

SYMBOLGY ITS MANAGEMENT CONCEPT

2-1 OVERVIEW

A. The overall authority for establishing and implementing information management policies, processes, programs, and standards to govern the development, acquisition, and operation of DOD information management systems is vested in the ASD(C3I). The ITS Program is conducted in accordance with ASD(C3I)/Deputy Assistant Secretary of Defense for Information Management (DASD/IM) direction and documented in JIEO Plan 3200 (reference a). As DOD's EA for ITS (reference d), DISA/JIEO/CFS developed the plan and executes the program in conjunction with the C/S/As. This plan governs all legacy systems, systems currently in development, and future system plans and acquisitions.

B. The CFS conducts appropriate standards activities through the Defense Standardization Program (DSP) standardization areas. The Office of the Assistant Secretary of Defense for Economic Security (OASD(ES)) directs and guides the DSP.

C. The Symbology standards management concept is designed to use the standards activities, processes, and procedures established in the ITSMP (reference a) and the DSP (reference h). The Symbology ITSMP provides the management structure and mechanisms necessary to coordinate and integrate the functional and technical efforts to standardize the symbology-related ITS that affect C4I interoperability.

2-2 MANAGEMENT STRUCTURE

A. Under the ITS Program, the bulk of ITS activities are accomplished by standards management committees (SMCs) chaired by C/S/As. A Symbology SMC (SSMC) was formed to coordinate DOD symbology standardization activities. DISA is the EA for ITS; and the SSMC, chaired by the CFS, appropriately falls under its direction.

B. The Symbology ITS management concept is supported by the management structure shown in figure 2-1. The structure places a single management authority at the lowest possible ITS group level, integrates the functional and technical elements involved in ITS development, and uses existing standards bodies.

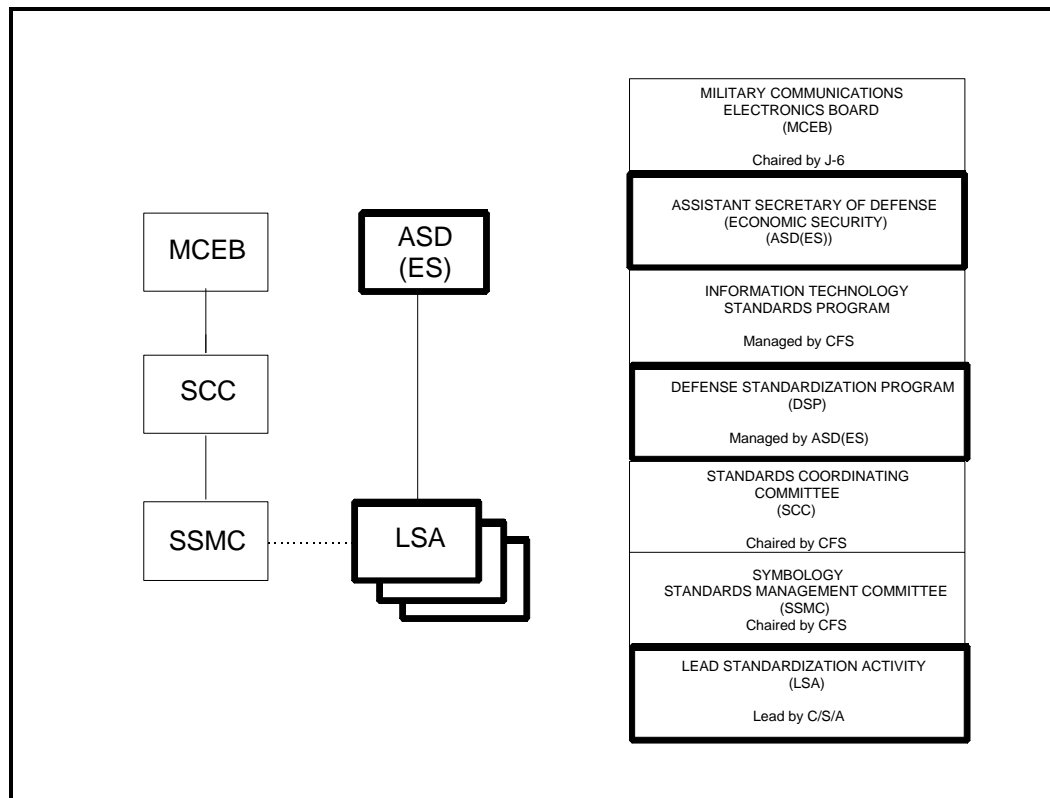


Figure 2-1. Symbology ITS Management Structure

C. The scope of symbology in the ITS community currently spans the responsibilities of several DSP standardization areas. These Lead Standardization Activities (LSAs) include Mapping, Charting, and Geodesy Technology (MCGT), Drawing Practices (DRPR), Human Factors (HFAC), and Information Standards and Technology (INST). Responsibility for symbology standards are placed in the appropriate LSA as follows: MC&G Symbology - MCGT; Engineering Design Symbology - DRPR; Aircraft Display Symbology - HFAC; and Warfighting Symbology - INST. The SSMC coordinates with standardization areas to provide a single focal point for symbology standardization activities. This coordination is essential to the establishment of symbology standards and to eliminate redundancy. It also serves to ensure that standards documents contain valid requirements, current technology, modern industrial practices, and proven conformance testing methods. In addition, the SSMC, in its Configuration Control Board (CCB) role, coordinates with the appropriate LSA to maintain existing standards. Figure 2-2 shows the relationship of the SSMC with other standardization areas that are in the symbology related standardization business.

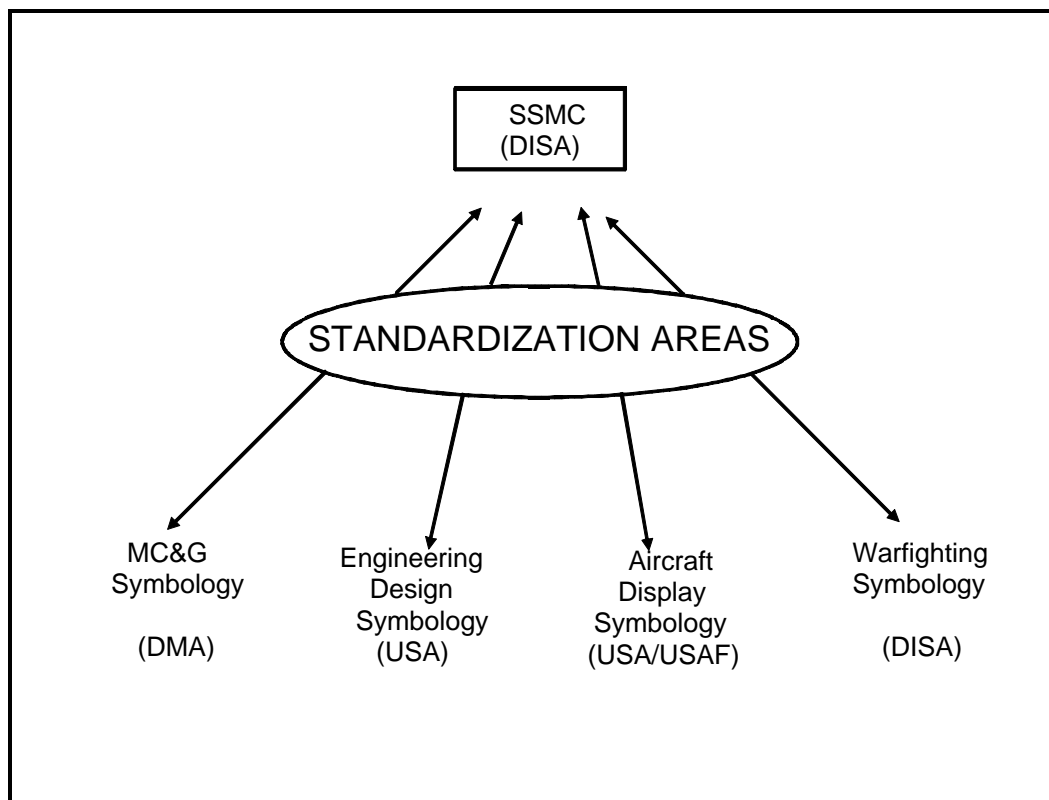


Figure 2-2. SSMC Standardization Relationships

D. The responsibilities of the Symbology ITS management structure elements are outlined in the following paragraphs.

1. CFS as EA. The EA has the following duties:
 - a. Manages the Information Standards Program through adoption, development, specification, certification, and enforcement of ITS.
 - b. Coordinates and integrates the DOD ITS activities to include the configuration management of ITS through the information technology process.
 - c. Ensures that the ITS management activities are conducted with the participation of interested C/S/As, OSD, the Joint Chiefs of Staff (JCS) offices, and activities that represent businesses with C4I interests.
 - d. Prepares, implements, and maintains the ITS Management and Program Plans.

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- e. Administers the process through which ITS requirements are defined and projects are prioritized and satisfied.
- f. Plans and programs the resources needed to execute the EA function.
- g. With the assistance of the DOD information technology management forums, establishes and maintains standards profiles for DOD's use.
- h. Designates DOD representatives to external ITS bodies.
- i. Manages the process of coordinating DOD's positions with the National Institute of Standards and Technology (NIST), the National Communications System (NCS), the National Telecommunications and Information Administration (NTIA), and other Federal agencies before presenting them to external bodies.
- j. Reports major activities to ASD(C3I).

2. Standards Coordinating Committee (SCC). The SCC serves as the principal DOD forum for ITS matters, and is chaired by the CFS. The CFS will provide secretariat support to the SCC. The SCC is composed of members representing the OSD, the Joint Staff, and the C/S/As. It may include activities that represent business and C4I interests, including appropriate contractor personnel, at the invitation of members or the chair. Representatives of NCS, NIST, and NTIA also are invited to participate in the SCC. The SCC performs the following activities:

- a. Manages the ITS Program efforts with the guidance set forth in DOD Instruction 4630.8 (reference i) and DOD 4120.3-M (reference h) as supplemented by JIEO Plan 3200 (reference a).
- b. Facilitates identification of ITS requirements by C/S/A customers (C4I and business (mission support) groups).
- c. Prioritizes projects and identifies resources needed to address ITS requirements.
- d. Coordinates and integrates all DOD standardization actions, including DSP efforts.
- e. Charters, tasks, and oversees the SSMC that conducts the standardization activities in specified ITS areas.
- f. Assesses the completeness of standards products referred to in the SCC and recommended for approval by the CFS Director.

- g. Sponsors and provides support for the DOD representatives to the executive level organizations of selected external (non-DOD) standards bodies.
- h. Provides recommendation on the resolution of technical and program execution issues, then forwards them to the Director, CFS, for his review and approval.
- i. Serves as a panel of the Military Communications-Electronics Board (MCEB).

3. Symbology Standards Management Committee (SSMC). The SSMC is subordinate to the SCC and is chartered to coordinate and manage the Symbology ITS program. The SSMC is chaired by the CFS, which also provides secretariat support. The SSMC is composed of representatives from C/S/As and other members of the Federal government, and receives active participation from the symbology-related lead standardization areas of MCGT, HFAC, DRPR, and INST. Representatives from NCS, NIST, and NTIA also are invited to attend meetings. The SSMC has the following responsibilities:

- a. Coordinates and integrates all actions ongoing within the SSMC functional area, including providing appropriate support to the DSP LSA in developing, adopting, specifying, certifying, and enforcing symbology-related ITS.
- b. Pursues the satisfaction of symbology-related ITS either directly in the SSMC forum by sponsoring DOD representatives to external (non-DOD) ITS bodies, or by chartering subordinate symbology working groups to undertake these issues.
- c. Assists the DOD organizations in standardizing symbology to meet their C4I system needs and functional requirements.
- d. Develops symbology standards and maintains configuration control of approved standards.
- e. To the extent authorized, ensures the compatibility and interoperability between the display and use of symbols within C/S/A C4I systems.
- f. Ensures that symbology ITS developed under its direction are in accordance with the guidance contained in JIEO Plan 3200.
- g. Develops symbology standards selection criteria, combining

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operational requirements, human factors engineering, and technical considerations. Works in conjunction with the INST area Departmental Standardization Office (DepSO) and the LSA to resolve problems and issues raised by participating activities.

h. Receives and reviews proposals for symbology standards or standardization from interested members or parties sponsored by a member. Recommends and supports the establishment of standardization projects in standardization areas related to symbology.

i. Assesses the completeness of symbology standards products developed under its direction. Compares the applicability of proposed standards with the stated needs and requirements listed in users' needs documents, functional requirements documents, and guidance documents.

j. Solicits, recommends, and endorses nominations of DOD representatives to external groups.

k. Sponsors and provides support, including the development of guidance packages for DOD representatives to external IT standards bodies under its cognizance.

l. Forwards unresolved issues to SCC for resolution.

m. Establishes working groups (WG) as-needed to address specific symbology-related standards issues and projects and to bring special technical expertise to bear. The WG works at the direction of the SSMC to assist in the development of symbology ITS and provide technical positions and recommendations as required and/or directed. The composition of the WG and its chair are at the discretion of the SSMC.

4. Defense Standardization Program (DSP). The DSP is conducted under the authority of the OASD(ES). It is executed by C/S/A components identified in DOD 4120.3-M (reference h) and listed in the SD-1 (reference j). It is responsible for standardizing materials, parts, items, components, equipments, subsystems, systems, processes, practices, and procedures essential to the design, acquisition, management, and use of defense material.

5. (DepSO). The DepSO performs the following tasks:

a. Plans, directs, and monitors the DSP within DISA.

b. Assigns standardization responsibilities within DISA.

- c. Acts as the DISA liaison with the OASD(ES) on DSP issues.
- d. Approves/disapproves standardization projects.

6. Standardization Areas Involved in Symbology ITS. The INST standardization area is managed by the CFS Standards Department. This standardization area addresses the systematic standardization of the structure, values, definition, and representation of data that give meaning, enhance information sharing and exchange, and facilitate effective decision-making based upon a common representation and understanding of specific bits of information throughout DOD. The development of data element standards will result in data independent of applications. Through the CFS, the SSMC will facilitate active coordination with other related DSP standardization areas, including at least MCGT, HFAC, and DRPR.

7. Lead Standardization Activity (LSA). The LSAs perform the following functions:

- a. Develop and coordinate Standardization Program Plans in accordance with reference h.
- b. Guided by the DepSO, manage and assist standardization efforts developed and coordinated by the SSMC .
- c. Integrate all ongoing symbology standardization efforts within the appropriate standardization area (INST, MCGT, DRPR, and HFAC).
- d. Facilitate the definition and application of symbology standardization for DOD.
- e. Document standardization decisions in specifications, standards, studies, and other related documents.
- f. Adopt nongovernment standards (NGSs).
- g. Serve as DSP technical focal points.
- h. Implement DSP policies and procedures as follows:
 - 1. Ensure that the maximum practical degree of standardization is attained and maintained.
 - 2. Ensure the elimination of overlapping and duplicate standardization documents.

3. Assign project numbers for assigned areas.
4. Ensure that projects are initiated and completed in a timely manner.
5. Ensure that the standards documents conform with the applicable format.

2-3 SYMBOLOGY ITS MANAGEMENT STRUCTURE AS PART OF THE DSP

A. The DSP processes and procedures are found in DOD 4120.3-M, *Defense Standardization Program - Policies and Procedures* (reference h). This manual is designed for use at the standardization operating level without supplementary instruction. The processes and procedures in it are used to integrate and coordinate the various Symbology ITS activities.

B. The scope of current Symbology ITS requirements encompasses the objectives of several related DSP standardization areas. Figure 2-2 illustrates this relationship. The Symbology ITS are coordinated and approved as follows:

1. Symbology related Military and Information Standards are coordinated and approved through the appropriate standardization areas (INST, MCGT, DRPR, and HFAC).
2. Warfighting symbology standards related to C4I are developed, coordinated, and approved within the INST standardization area with DISA (CFS) as the LSA.
3. Optical display symbology for aircraft, air defense, and weapons systems is developed in and coordinated within the HFAC standardization area. The U.S. Army Missile Command (MICOM) is the HFAC LSA. HFAC also plays a vital role in developing, selecting, and validating symbology developed under the INST, DRPR, and MCGT standardization areas.
4. Symbology related to mapping, charting, and geodesy (MC&G) is developed, coordinated, and approved within the MCGT standardization area. The Defense Mapping Agency (DMA) is the LSA for MCGT.
5. Engineering design related symbology is coordinated and approved within the DRPR standardization area by the U.S. Army Armament Research, Development, and Engineering Center as the LSA.

2-4 STRATEGY FOR SYMBOLOGY ITS PROGRAM MANAGEMENT

A. The Symbology ITS management structure shown in figures 2-1 and 2-2 represent ongoing efforts to develop Symbology ITS. The indicated forums are formed by consolidating and reorganizing existing groups and activities. Centralized coordination of the process reduces the number of C/S/A resources required to support Symbology ITS activities. The following strategies are applied:

1. NGS and commercial item descriptions are used in preference to Federal and military specifications and standards whenever practical.
2. DOD efforts to develop standards reflecting unique government requirements are identified and reviewed for possible application of commercial standards.
3. DOD programs pursuing the development of standards to satisfy similar requirements are consolidated.
4. Military and unique Federal standards are reviewed to identify and eliminate duplication with commercial standards.
5. DOD participates in commercial standards groups as appropriate.
6. The SSMC develops and coordinates the DOD positions presented to commercial standards groups or areas of technology that concern Symbology ITS.
7. If practical, the SSMC and DOD representatives coordinate views to develop a single government position when Federal agencies participate in commercial standards groups.
8. When an area of technical interest to the SSMC includes several commercial standards activities, the SSMC identifies a focal point to provide support, which will ensure that an integrated approach is accomplished.
9. When appropriate, NIST, NCS, and NTIA are enlisted to present the DOD position to non-DOD symbology standards activities.

B. Members of the Symbology ITS community collaborate and coordinate ideas, requirements, projects, and progress to promote the efficiency and success of the overall ITS program with the objective of attaining the following benefits:

1. A unified DOD position on Symbology ITS.

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2. Consistent interpretation, implementation, and application of symbology-related ITS.
3. Identification and establishment of areas of mutual interest.
4. Collaboration in planning efforts to accomplish the following:
 - a. Eliminate duplication of effort.
 - b. Integrate products and efforts.
 - c. Combine resources.
 - d. Determine the cost/benefit ratio of combined projects versus separate endeavors.
 - e. Develop and execute coordinated, consistent, and complementary ITS program plans and standards.
 - f. Facilitate a higher level of review by synchronized program and project monitoring and reporting.
 - g. Establish communication with all DOD components and external groups participating in symbology ITS activities.

CHAPTER 3

SYMBOLGY INFORMATION TECHNOLOGY STANDARDS PROCESS

3-1 OVERVIEW

A. The Symbolgy ITS process mirrors the ITS Process Model shown in figure 3-1 and described in reference a. The process establishes and maintains commercial, Federal, or military standards and identifies the components responsible for steps within the process.

B. The Symbolgy ITS process is driven by the functional requirements of the C/S/As' C4I community. The process requires coordination with and among DISA and military, Federal, national, and international standards organizations.

3-2 PROCESS

The Symbolgy ITS process involves four steps that consist of a requirements analysis, an assessment, specification and certification (testing), and implementation of the standards as shown in figure 3-1.

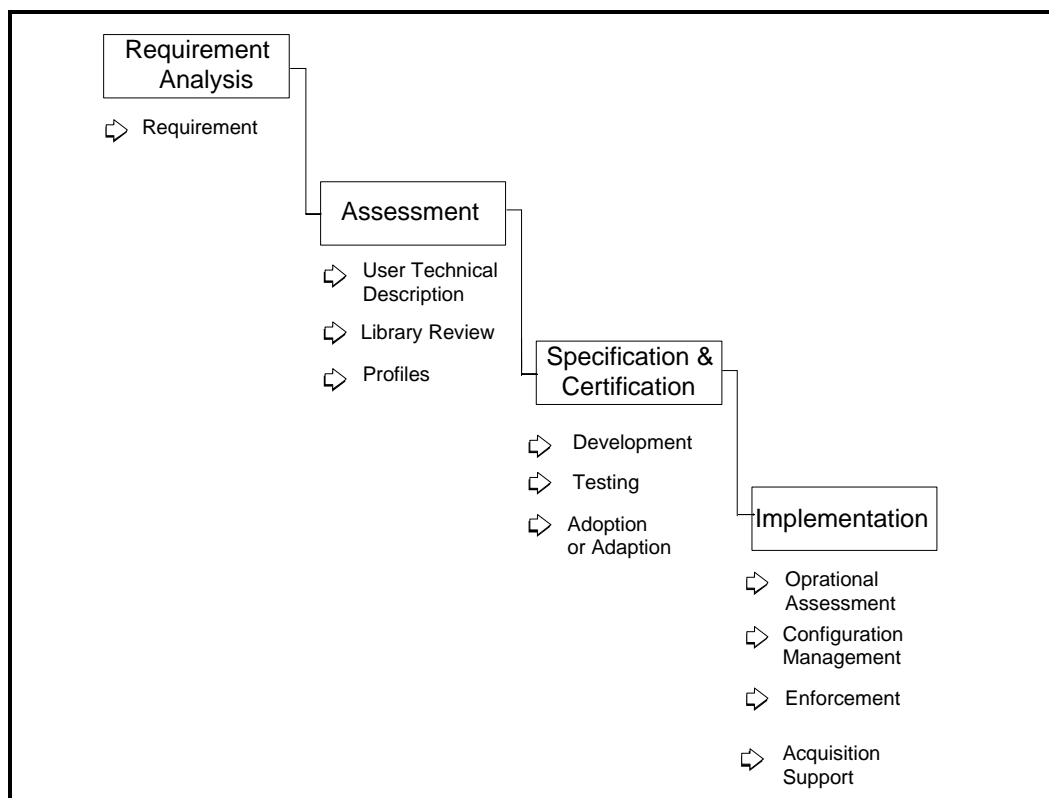


Figure 3-1. ITS Process

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A. Requirements Analysis.

1. The basis for DOD IT standards activities is the need for information systems to interoperate. Responsibility for identifying those needs for new systems, acquisitions, or modifications properly lies within the DOD user community, that is, those personnel, organizations, and acquisition authorities acting on behalf of the user community with the stated requirements for a particular service or capability. These requirements are developed as a result of deficiencies such as lessons learned, interoperability issues, and visions., and are usually identified through functional architectures (process models), system architectures, service and agency laboratories, and program managers pursuing advanced technology solutions to information system needs. They originate directly from requests developed by warfighters and processed through the C/S/As, JCS, and OSD in the form of functional requirements documents. Functional requirements documents are developed from the Mission Need Statements (MNSs), which in turn, are developed and processed in major defense acquisition programs (reference k).

2. A user's technical service description is used to ensure that requirements are well defined, properly stated, and complete. The MNS is the broad operational definition from which functional information technology standards requirements are developed; whereas, the user technical description is a clear definition of the user's requirement. This technical description makes the identification of a specific ITS possible. It includes the following:

- a. General description of the information technology services required.
- b. Functional model (description of need).
- c. Associated information exchange requirement.
- d. Internetworking requirements with other services and capabilities.
- e. Associated operational procedures.
- f. Network and terminal aspects.
- g. Quality of service parameters. (timeliness, etc.).
- h. Unique military features. (survivability, environmental, etc.).

3. DISA will assist the user community in developing technical service description for functional Symbology ITS requirements assisted by members of the SSMC. The CFS provides ITS technical guidance through its SMC membership.

4. The Symbology ITS program participates and maintains liaison with the C4I community and supports its efforts to establish functional requirements for information technology

standards. DISA manages this interaction through the SSMC and related working groups for information standards functional requirements.

B. Assessment. The assessment identifies existing and developmental Federal, commercial, international, and military standards that will fulfill the information technology service or capability defined in the user's requirement. The user, assisted by DISA, evaluates the adequacy of the standards identified, and shows shortfalls that may be satisfied by additional or modified ITS. The assessment is accomplished by DISA's CFS through the SSMC, selection criteria based on using technical, operational, and human engineering. DISA provides access to standards databases, standards projects and activities, and recommendations on the application of existing standards. When no shortfalls are present in current standards as identified in the standard assessment, the standard is developed and published in accordance with references a and g. When shortfalls are identified during the standard assessment, DISA/CFS will begin to satisfy the requirement through the SSMC.

C. Specification and Certification.

1. DOD's first approach is to have the desired feature or symbol incorporated into an existing standard or standards profile. If none exists or if no existing standard can be modified, a new standard may be developed in accordance with the procedures outlined in reference a. Military Standards (MIL-STDs) and Information Standards are developed only when standards requirements cannot be met by existing non-Government or Federal standards, as in the case of C4I warfighting symbology requirements. Through the SSMC, DISA monitors the work of nongovernment and Federal standards activities, and manages DOD participation in proportion to the level of DOD interest.

2. When the user has specified the IT standards profile, DISA will certify it. This certification will verify that the suite of standards or standards profiles satisfy the requirement. Testing is conducted to validate issues related to compatibility, interoperability, and integration. Testing directly related to Symbology ITS is conducted to evaluate and certify the interoperability and portability of specific systems' or subsystems' implementation of selected standards, including human engineering performance criteria. Testing will be coordinated by the respective LSA and certified by the Chairman, Joint Chiefs of Staff (CJCS) in accordance with DOD Instruction 4630.8 for C4I systems (reference h). With the exception of the Symbology MIL-STDs and Information Standards in the DRPR standardization area, testing will be conducted by the Joint Interoperability Testing Center (JITC).

D. Implementation. The availability of symbology standards can affect the fielding and operational effectiveness of many C4I systems. DISA will pursue effective implementation of Symbology ITS throughout DOD through the SSMC. Implementation addresses four key areas: acquisition support, operational assessment, configuration management, and standards enforcement.

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1. Acquisition Support. A systematic approach will be devised for inserting symbology standards into the planning, requirements definition, and acquisition of C4I systems that display symbology, including any weapon system or platform that uses symbology in any form. This also includes systems being developed or in the acquisition pipeline. The DODD's and DOD Instructions (DODI's) on acquisition, DODD 5000.1, DODI 5000.2, and DODD 7920.1 (references k, l and m), describe the general procedures for identifying, documenting, and presenting requirements and report progress.

2. Operational Assessment. As symbology standards are incorporated and used within DOD C4I and weapons systems, an operational assessment is made. The ITS developers collect and evaluate lessons learned. This information provides the basis for enhancing these standards and clarifying requirements.

3. Configuration Management (CM). CM of standards documents has four primary functions: (a) identifying a standard, (b) controlling, processing, and approving changes, (c) managing and accounting for changes, and (d) auditing the configuration item to ensure that the standard still fulfills the requirement. The Preparing Activity is responsible for the CM of its standardization documents. As a result of user feedback and document review, the Preparing Activity must update and validate the requirements continually in its standardization documents until the document is inactivated, superseded, or canceled. CM of Symbology ITS will be conducted in accordance with the guidance outlined in reference a. The CM process is established and implemented by the SSMC. The SSMC develops and publishes CM plans for Symbology ITS as supplements to this SITSMP.

4. Standards Enforcement. The primary standards enforcement mechanism will be the existing acquisition directives. In addition, joint and service doctrine and directives derived from an agreed upon standard, such as an Information Standard on Joint Warfighting Symbology, also will act to enforce compliance.

3-3 PLAN OF ACTION

A. The SSMC is responsible for orchestrating the implementation of Symbology ITS within DOD. The plan of action outlined in Supplement 1 provides a detailed list of tasks and associated milestones necessary for developing common symbology standards. The milestones are divided into three distinct, yet overlapping phases. Phases I and II are the planning and developmental phases. In them, information is gathered, assessments are made, and a management structure under the INST is established. Phase III is the execution phase, where the coordination and standardization efforts result in standards products. This process is outlined in figure 3-2.

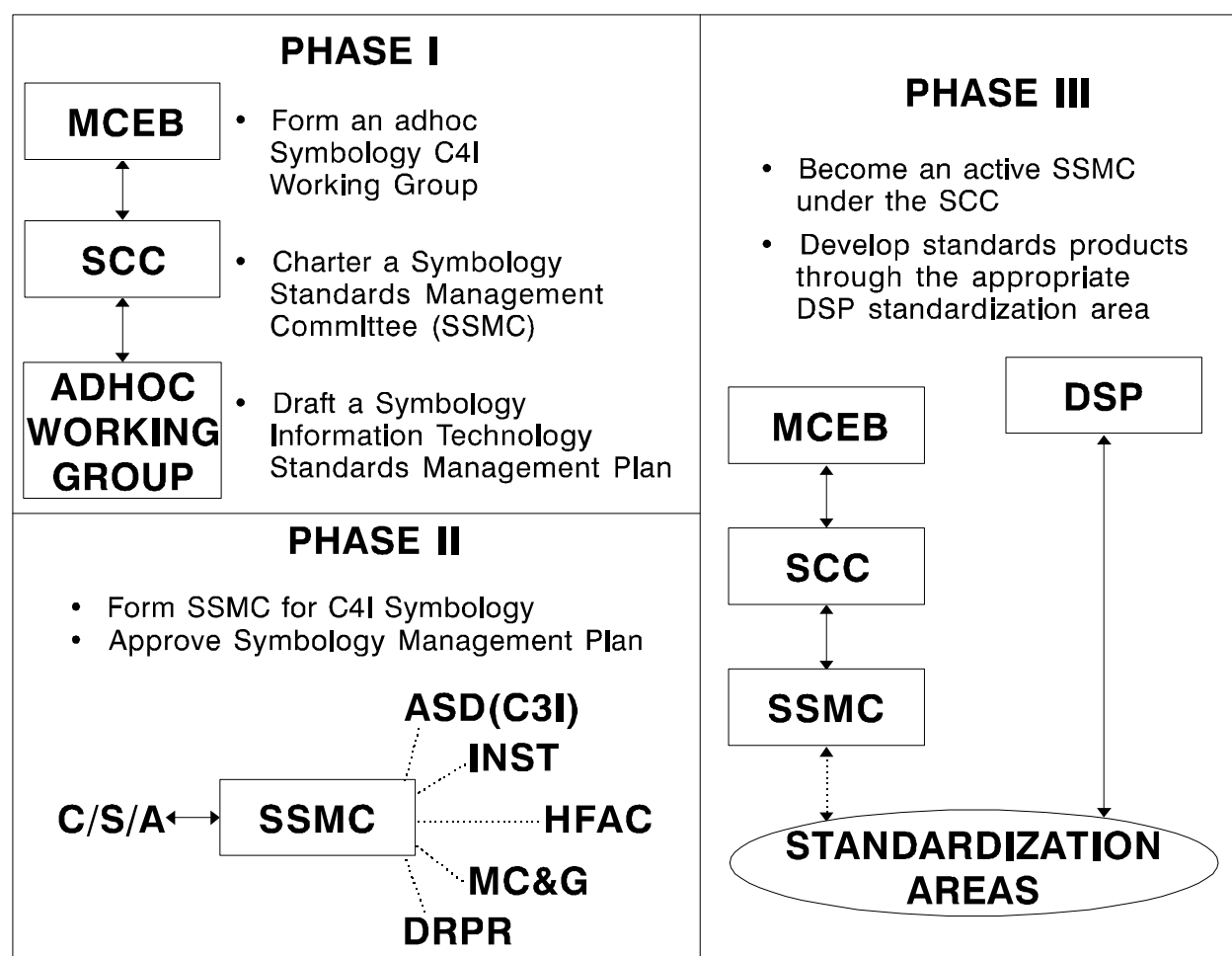


Figure 3-2. Symbology Standardization Process

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B. Numerous symbology standards activities are currently in progress, are programmed, or have been completed under the DSP areas of MCGT, HFAC, DRPR, and INST. These standards activities make up a family of symbology standards managed and/or coordinated under the SSMC. These standards include MIL-STD-2525, *Common Warfighting Symbology*, Version 1, MIL-STD-2402 (draft), *MC&G Symbology for Graphic Products*, (MIL-STD 2412 (draft), *Vector Product Format Symbology*, MIL-STD-1787B, *Aircraft Display Symbology*, MIL-STD-1477B, *Weapons Control Symbology*, and programmed symbol standards addressing symbol automation, law enforcement, weather, intelligence, satellite control, and other symbols sets as required. Figure 3-3 shows this family of symbology standards. The development of these standards is outlined in Supplement 1 to this management plan.

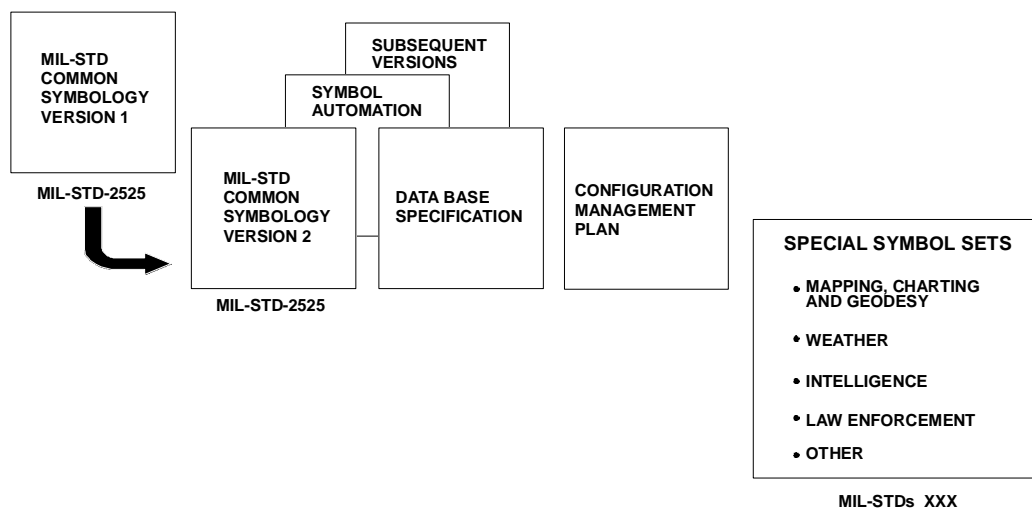


Figure 3-3. Family of Symbology Standards

APPENDIX A

GLOSSARY

A-1 ACRONYMS AND ABBREVIATIONS

ASD(C3I)	Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
CCB	Configuration Control Board
CFS	Center for Standards
CIM	Corporate Information Management
CINC	Commander in Chief
CJCS	Chairman, Joint Chiefs of Staff
CM	Configuration Management
C/S/A	CINCs/Services/Agencies
C3I	Command, Control, and Communications
C4I	Command, Control, Communications, Computers, and Intelligence
DASD/IM	Deputy Assistant Secretary of Defense for Information Management
DepSO	Department Standardization Office
DISA	Defense Information Systems Agency
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DMA	Defense Mapping Agency
DRPR	Drawing Practices

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DSP	Defense Standardization Program
EA	Executive Agent
FSC	Federal Supply Code
FSG	Federal Supply Group
HFAC	Human Factors
INST	Information Standards and Technology
IT	Information Technology
ITS	Information Technology Standards
ITSP	Information Technology Standards Program
ITSMP	Information Technology Standards Management Plan
JCS	Joint Chiefs of Staff
JIEO	Joint Interoperability Engineering Organization
JITC	Joint Interoperability Testing Center
LSA	Lead Standardization Activity
MCEB Military Communications-Electronics Board	
MC&G	Mapping, Charting, and Geodesy
MCGT	Mapping, Charting, and Geodesy Technology
MICOM	U.S. Army Missile Command
MIL-STD	Military Standard
MNS	Mission Need Statement
MOA	Memorandum of Agreement
NCS	National Communications System

NGS	Nongovernment Standard
NIST	National Institute of Standards and Technology
NTIA	National Telecommunications and Information Administration
OASD (ES)	Assistant Secretary of Defense for Economic Security
OSD	Office of the Secretary of Defense
SCC	Standards Coordinating Committee
SECDEF	Secretary of Defense
SITSMP	Symbology Information Technology Standards Management Plan
SMC	Standards Management Committee
SSMC	Symbology Standards Management Committee
USA	United States Army
USAF	United States Air Force
WG	Working Group

A-2 DEFINITIONS

Configuration Management (CM). As applied to configuration items, this is a discipline applying technical and administrative direction and surveillance during the life cycle of items to identify and document the functional and physical characteristics of configuration items, to control changes to items and documentation, to record and report information, and to audit items to verify conformance to specifications, drawings, interface control documents, and other contract requirements.

Coordination. Coordination is the process of having standardization documents reviewed and commented upon by government and private sector organizations.

Drawing Practices (DRPR). DRPR relates to engineering practices to define, record, and communicate concepts and design and production requirements in a concise, graphic form with standard symbols, abbreviations, and text on drawing and associated lists.

Human Factors (HFAC). HFAC encompasses human factors engineering, which incorporates

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human characteristics and considerations into the design of military systems, equipment, and facilities. The HFAC standardization area includes tasking requirements and technical data for analysis, design test, and evaluation during acquisition. It also includes design criteria expressed as requirements and guidelines as they apply to those who will operate, control, maintain, supply, or transport the material. HFAC also encompasses environmental considerations including limits for maximum exposure, human performance, habitability, and vulnerability. Manpower, personnel, and training considerations apply only to the degree that they affect human performance aspects of design.

Information Standards (INST). Information standards constitute the proposed standardization area that encompasses the development, coordination, and integration of standardized information components across all functional areas within the DOD. It includes report standards; data exchange format standards; operational instructions; symbology standards; and geographic, graphic, and imagery constructs.

Information Technology Standards (ITS). ITS are standards that provide technical definitions for information system processes, procedures, practices, operations, services, interfaces, connectivity, interoperability, information formats, interchange and transmission or transfer. ITS apply during the development, testing, fielding, enhancement, and life cycle maintenance of DOD information systems.

Intelligence Symbology. Intelligence Symbology is used to support special intelligence applications within the C4I community.

Interim Documents. Interim documents are revisions, amendments, or change notices issued by a single military department, Defense agency, or activity within the DOD component for coordinated federal or military specifications or standards; guide specifications; or military handbooks or bulletins to meet a need when time does not permit preparation of a coordinated document. "Used-in-lieu-of" documents are now referred to as interims.

Interoperability. Interoperability is the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to operate effectively together.

Law Enforcement Symbology. Law Enforcement Symbology is used to support C3I functions within a multi-echeloned (federal/state/county/city/local) law enforcement community.

Lead Standardization Activity (LSA). An LSA is a management activity within a military department or Defense agency that guides DOD standardization efforts for a Federal Supply Group (FSG), Federal Stock Code (FSC), or Standardization Area through the development of standardization program plans, authorization of standardization projects, and identification and resolution of standardization issues. The SD-1 (reference i) identifies the LSAs.

Mapping, Charting, and Geodesy (MC&G) Symbology. MC&G symbology represents natural and man made features used in producing or displaying maps, charts, and digital geospatial

information.

Mapping, Charting, and Geodesy Technology (MCGT). The MCGT area encompasses standardization documents, procedures, methods, and techniques for mapping, charting, and geodesy (MC&G) technology and incorporates the technologies of geographic information, photogrammetry, cartography, terrain analysis, geodetic surveying, satellite geodesy, remote sensing, and map reproduction. This includes graphic and digital MC&G aeronautical, hydrographic, topographic, and target product-oriented standards (e.g., products, features, spatial data exchange, media, and quality), MC&G user-oriented standards (e.g., exploitation algorithms and computer graphics), remote sensing system standards, and MC&G sustainment standards, procedures, methods, and techniques (e.g., value-added algorithms, electronic communications, equipment, production, training, security, and distribution). Also included in this area are MC&G planning and requirements standards, and procedures to assure achievement of forces and weapon system readiness and interoperability.

Meteorological Symbolology. Meteorological symbolology is used in weather and climatic forecasting.

Nongovernment Standard (NGS). An NGS is a standardization document developed by a private sector association, organization, or technical society that plans, develops, establishes, or coordinates standards, specifications, handbooks, or related documents. This term does not include standards of individual companies.

Preparing Activity. The Preparing Activity is the DOD activity or the civilian agency responsible for preparing, coordinating, issuing, and maintaining standardization documents.

Profile. A profile is a set of one or more standards, and where applicable, the set of chosen classes, subsets, options, and parameters of those standards necessary to accomplish a particular function.

Satellite Control Symbolology. Satellite Control symbolology is used in the tracking, command and control, and management of DOD satellites mission applications.

Standard. A standard is a document that establishes uniform engineering and technical requirements for processes, procedures, practices, and methods. Standards also may establish requirements for selection, application, and design criteria of material.

Standardization. Standardization is the process of developing and agreeing upon (by consensus or decision) uniform engineering criteria for products, processes, practices, and methods.

Standardization Areas. Standardization areas are categories for engineering technologies, disciplines, and practices that do not fall under a FSC or FSG. The SD-1 (reference i) identifies the Standardization Areas.

Standardization Directory (SD-1). The Standardization Directory is a publication that identifies

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standardization responsibility assignments by FSCs, FSGs, and standardization areas. It also includes addresses, telephone numbers, and points of contact for the military offices, civilian agencies, and nongovernment standards bodies participating in the DSP.

Standardization Document. "Standardization document" is a generic term for a document used to standardize an item of supply, process, procedure, method, data, practice, or engineering approach. Standardization documents include military specifications, standards, handbooks, bulletins, federal specifications and standards, guide specifications, and NGSs.

Standardization Program Plan. A standardization program plan is a document prepared by an LSA that identifies standardization opportunities, problems, and objectives, and establishes milestones for accomplishing standardization goals and specific tasks in a FSC, FSG, or standardization area.

Standardization Project. A standardization project is an effort approved by the cognizant LSA to develop, update, cancel, or adopt a standardization document, or conduct an item reduction study or engineering practice study.

Symbology. Symbology is a specifically defined sign used to represent an object or feature.

Warfighting Symbology. Warfighting symbology is used in the planning and execution of military operations in support of C4I functions and activities.

APPENDIX B

REFERENCES

- a. JIEO Plan 3200, *Information Technology Standards Management Plan*, November 1994.
- b. JIEO/CFS "Joint Warfighting Symbology - Assessment of Current Status," August 20, 1993.
- c. OSD Memorandum, "Implementation of Corporate Information Management Principles," November 16, 1990.
- d. ASD(C3I) Memorandum for Director, Defense Information Systems Agency, "Executive Agent for DOD Information Standards," September 3, 1991.
- e. Symbology Standards Management Committee (SSMC) Charter, February 9 1994.
- f. DOD 5200.1-R, *Security Classification and Safeguards Program Regulation (Draft)*, October 1993.
- g. DODD 5230.9, *Clearance of DOD Information for Public Release*, April 2, 1982.
- h. DOD 4120.3-M, *Defense Standardization Program (DSP), Policies and Procedures*, July 7, 1993.
- i. DODD 4630.8, *Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems*, November 18, 1992.
- j. SD-1, *Standardization Directory*, September 1, 1992.
- k. DODI 5000.1, *Defense Acquisition Management Policies and Procedures*, February 23, 1991.
- l. DODD 5000.2, *Defense Acquisition*, February 23, 1991.
- m. DODD 7920.1, *Life Cycle Management of Automated Information Systems (AISs)*, June 20, 1988.